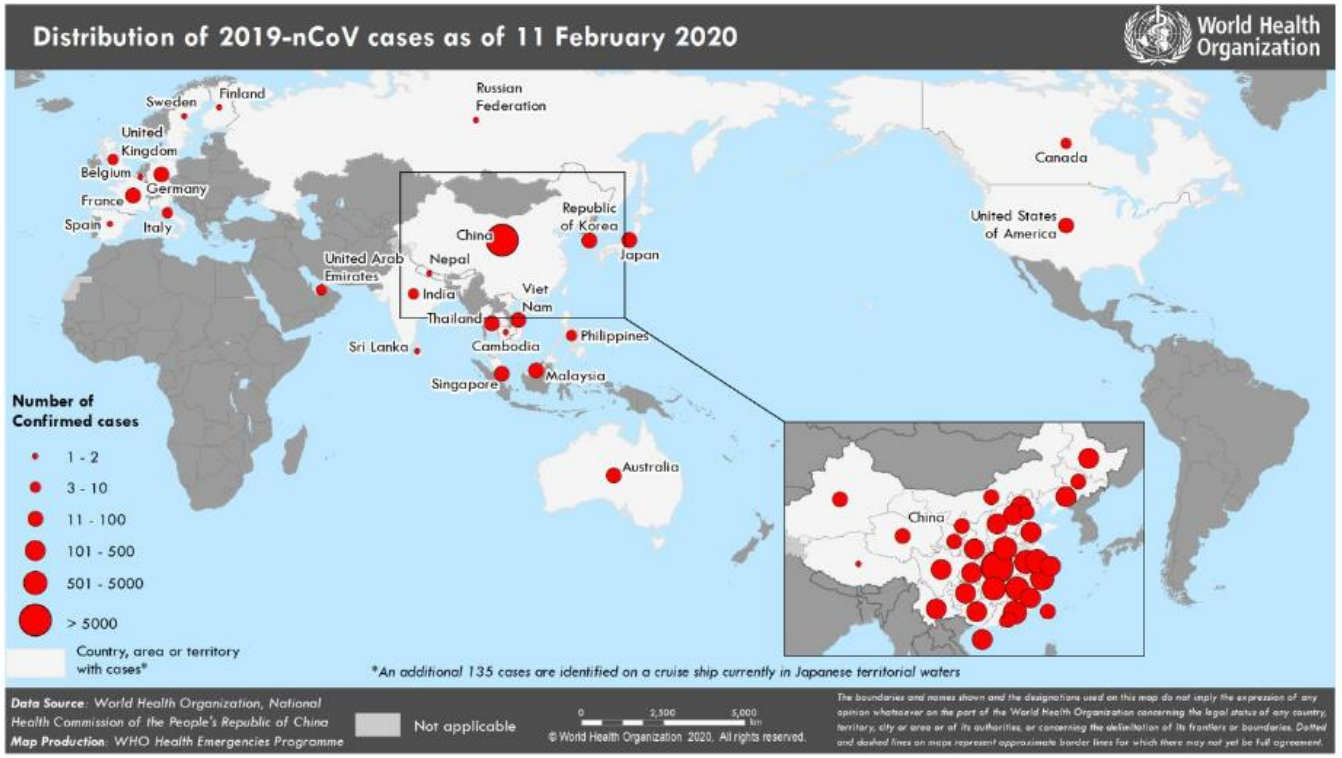
CRP testing supports coronavirus management in China

Situation Feb 11th 2020

Coronavirus (2019-nCoV) situation

The amount of coronavirus infections is estimated to increase every day (WHO)



WHO updates the situation daily: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/

SITUATION IN NUMBERS

total and new cases in last 24 hours

February 11th 2020

Globally

43 103 confirmed (2560 new)

China

42 708 confirmed (2484 new)

7333 severe (849 new)

1017 deaths (108 new)

Outside of China

395 confirmed (76 new)

24 countries

1 death

WHO RISK ASSESSMENT

China	Very High
Regional Level	High
Global Level	High

Coronavirus (2019-nCoV) and CRP in literature

- Novel coronavirus (2019-nCoV) seems to increase C-reactive protein (CRP) levels significantly, due to viral alveolar damage that was also seen in the SARS epidemic in 2002
- “Older patients (aged >60 years) had more systemic symptoms, extensive radiological ground-glass lung changes, lymphopenia, thrombocytopenia, and increased C-reactive protein and lactate dehydrogenase levels.” [1]
    - Older patient (>60) CRP levels were 56 and 34 mg/l, as of working age (<40) were normal (<5 mg/l). The data was from 5 patients (a family).
- “Elevated levels of C-reactive protein (CRP, 41.4 mg/L of blood, reference range 0-6 mg/L) was observed and levels of aspartate aminotransferase, lactic dehydrogenase, and creatine kinase were slightly elevated in blood chemistry tests.” [2]
    - Data: 1 patient, working age 41.

1. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30154-9/fulltext
2. https://www.biorxiv.org/content/10.1101/2020.01.24.919183v1.full.pdf

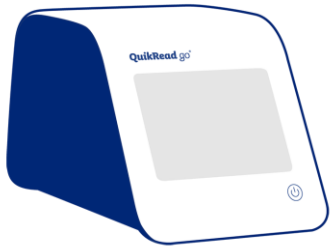
Coronavirus (2019-nCoV) infection diagnostics in China – National guideline

- General Office of the Chinese National Health Commission has released a guideline February 4th “Diagnosis and treatment of pneumonitis with a new coronavirus infection, Fifth Edition” to guide the diagnosis and treatment of the patients affected by the novel Coronavirus (2019-nCoV)

- Diagnosis: “Elevated C-reactive protein and ESR are observed in most patients”,
- Treatment: “Monitor blood routine, urine routine, C-reactive protein (CRP), biochemical indicators (liver enzyme, myocardial enzyme, renal function, etc.), coagulation function according to the condition, and perform arterial blood gas analysis if necessary, and review chest imaging.”

How CRP supports diagnostics and treatment in China?

Patient with fever



CRP measurement

High CRP → Coronavirus confirmation with
- ✓ Chest X-ray / CT
- ✓ DNA test

Normal CRP → No confirmatory test, monitor if CRP elevates

- ✓ CRP is especially used for early phase screening to reduce the amount of coronavirus confirmatory tests
- ✓ There is not enough capacity to perform chest X-ray/CT or DNA test for everyone as both require specific equipment which are available only in selected large-scale hospitals, DNA test takes several hours
- ✓ Fast CRP test can be done anywhere, instrument is transportable and ready to use
- ✓ Those who are infected with coronavirus, the disease is monitored with CRP measurements: when the CRP levels starts to drop, the patient is considered to get better

AIDIAN

Prescreening with QuikRead go CRP

- Receive lab results independent from location (no transport of infected material, no spreading of potentially infected material throughout the hospital, no risk of contamination in the lab)
- Fast CRP results in only 2 min from small sample volume (or from fingerprick) - immediate reaction/ hospitalization etc. possible
- Transportable instrument with battery, ready to use – easy to set up anywhere!